

RECENT CHANGES IN THE SUBCONTRACTING SYSTEM OF THE JAPANESE MOTOR INDUSTRY: A COMPARISON WITH THE BRITISH MODEL

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I

The Japanese motor industry has made remarkable progress in recent years; notably, since the mid 1950's. The high rate of economic growth of the Japanese economy has brought about the rapid development of an engineering industrial sector. The Japanese motor industry accounts for approximately one-fourth of the total production of this sector and, therefore, occupies an important position in the Japanese economy.

TABLE 1. PRODUCTION AND EXPORT OF MOTOR VEHICLES
(in thousands)

Year	Production			Export		
	Commercial Vehicles	Private Cars & Taxis	Total	Commercial Vehicles	Private Cars & Taxis	Total
1961	630	246	876	26	11	37
1962	734	302	1,036	38	20	58
1963	955	448	1,403	64	37	101
1964	1,134	619	1,753	86	80	166
1965	1,216	722	1,938	92	111	203

Source: Compiled from figures supplied by "Jidōsha Kōgyō Kai" (Motor Industry Association).

Despite the rapid increase of automobile production in Japan the industry retains numerous backward features: high percentage of production of small vehicles; high dependence on internal market; low productivity per unit; low percentage of production of private passenger vehicles; general small scale of manufacturers and low degree of industrial concentration. The most salient backward aspect in the structure of this industry, however, is found in the relationship between the automobile manufacturer and his suppliers. This paper is an attempt to clarify the recent changes within this relationship and, wherever possible, to compare them with the historical changes which have occurred in the subcontracting system of the British motor industry.

A major characteristic of motor industries in general is that materials and component parts supplied by outside sources constitute a high percentage of the total unit cost. The activities of the automobile manufacturers are confined largely to the production of major

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mechanical components (engine, etc.) and to the final assembly of the vehicle. In Japan, the general expenses for subcontractors and the cost of component parts purchased from outside sources constitute approximately one-half of the total unit cost.

TABLE 2. ANALYSIS OF THE TOTAL COST OF 3 REPRESENTATIVE
AUTOMOBILE MANUFACTURING FIRMS

Cost \ Company	A	B	C
Direct Cost	64.9	68.7	70.0
Material	19.9	14.9	11.2
Components	31.6	53.8	} 55.3
Outside Manufacturing Costs*	13.4	0	
Other Expenses	—	—	3.5
Indirect Cost	26.4	26.7	18.7
Total	91.3	95.4	88.7
General Management Cost	1.9	4.6	6.8
Interest Payment	6.8	0	4.5
Total Cost	100	100	100

Source: Tsūsanshō Jūkōgyōkyoku Jidōshaka (Ministry of International Trade & Industry, Heavy Industry Bureau, Automobile Section) ed., "The Japanese Automobile Industry" (Tōkyō: MITI, 1961) p. 126.

* Parts, etc. produced by subcontractor with materials received from manufacturer.

Dependence on outside suppliers is not a feature peculiar to Japan but may also be seen in varying degrees in Western nations. In Great Britain, for example, approximately 60% of the factory value of a vehicle is contributed by outside suppliers.¹

A motor vehicle is made up of a very large number of complex and diverse components. Consequently, the manufacturing process consists mainly of two stages: firstly, the manufacture of the required parts; secondly, the assembly of these parts into the finished product. The larger components of the former activity are usually produced by suppliers, and the latter stage is always effected by the vehicle manufacturer. The appearance of this interdependent structure is common to all industrialized economies, but a sharp difference may be discerned between Japan and the West in the form of this relationship. Before discussing the basic structure and changes in the Japanese model I would like to examine the relationship as it exists in Great Britain.

The continued dependence on outside suppliers by the motor industry in Great Britain, as elsewhere, has been attributed to two main factors: the suppliers of many automobile component parts are specialists with long experience in the manufacture of their particular product; suppliers who sell to the entire motor industry rather than a single manufacturer are able to achieve economies of scale. Therefore, theoretically, virtual standardization and cost reduction is achieved throughout the industry.² There has been an historical tendency in Japan to regard the British system as one to be emulated: an ideal form of social division of labor in

¹ G. C. Allen, *British Industries and their Organization* (London: Longmans, 1959) 4th ed., p. 191.

² G. Maxcy & A. Silberston, *The Motor Industry* (London: George Allen & Unwin, Ltd., 1959) p. 132.

which manufacturer and supplier are on equal terms. Two considerations, however, must preclude such an interpretation of the British system: capital differential and market conditions.

Although a sizable number of automobile manufacturers exist in Great Britain the production of approximately 95% of all cars, and some 90% of all commercial vehicles and tractors is controlled by five major firms.³ The degree of concentration in the industry, therefore, is much greater than would appear at first investigation. Some important component parts are produced by a select number of large suppliers and in some cases by a single firm. Specialization has also reduced the degree of competition within the component industry. Nevertheless an extremely large number of firms are in some way responsible for the final product. The Society of Motor and Manufacturers and Trades (SMMT) lists over 400 of its members as suppliers of parts and accessories.⁴ This difference in the degree of concentration leads to a difference in capital intensity between manufacturer and supplier. With enormous capital superiority, vehicle manufacturers are generally in a position of power vis-à-vis their suppliers. The vertically integrated mergers⁵ which have occurred within the British motor industry are examples of this capital strength of the manufacturer.

The large number of suppliers naturally depend on this relatively small group of manufacturers for the bulk of their sales. Consequently, the competition in selling component parts as "original equipment" or for subsequent sale as spare parts is usually extremely keen.⁶ An example of the advantageous position of the manufacturer may be seen in the study on the tire industry by the Monopolies Commission. This report views the bargaining power of the automobile manufacturers as a principle reason for the control of prices by the Tyre Manufacturer's Conference. Since the automobile manufacturers are able to exercise considerable pressure in bargaining, suppliers of components are often forced to sell to the latter at prices which are far lower than those at which they sell the same goods to dealers for future distribution to car owners for replacement purposes.⁷ Automobile manufacturers enjoy a further advantage through subcontracting in that during periods of business slack they are able to recall work from non-specialized subcontractors and thus keep their own plants fully employed. There has recently been a tendency for the manufacturer to secure control over the production of certain components previously produced by independent producers. Many suppliers are therefore forced to diversify their production and at times enter areas in which the products are unrelated, in other than similarity in material and methods of production, to the motor industry.⁸

Therefore, although there seems to be little justification at present for the accusation that automobile manufacturers attempt to squeeze the profits of their suppliers,⁹ it is clear that, because of his position of power, the manufacturer is able to take advantage of his subcontractors. It may be concluded then that there exist, even in Great Britain, economic forces which severely limit the social division of labor between manufacturer and supplier.

³ G. Maxcy, "The Motor Industry" in P. L. Cook and R. Cohen ed., *Effects of Mergers* (London: George Allen and Unwin, Ltd., 1958) p. 353.

⁴ G. Maxcy & A. Silberston, *op. cit.*, p. 29.

⁵ G. Maxcy, *op. cit.*, p. 376.

⁶ A. Silberston, "The Motor Industry" in D. Burn ed., *The Structure of British Industry* (Cambridge: Cambridge U. Press, 1958) Vol. II, p. 30.

⁷ Monopolies and Restrictive Practices Commission, "Report on the Supply and Export of Pneumatic Tyres, HMSO, 1955 cited in G. Maxcy & A. Silberston, *op. cit.*, pp. 127-130.

⁸ G. C. Allen, *op. cit.*, p. 134.

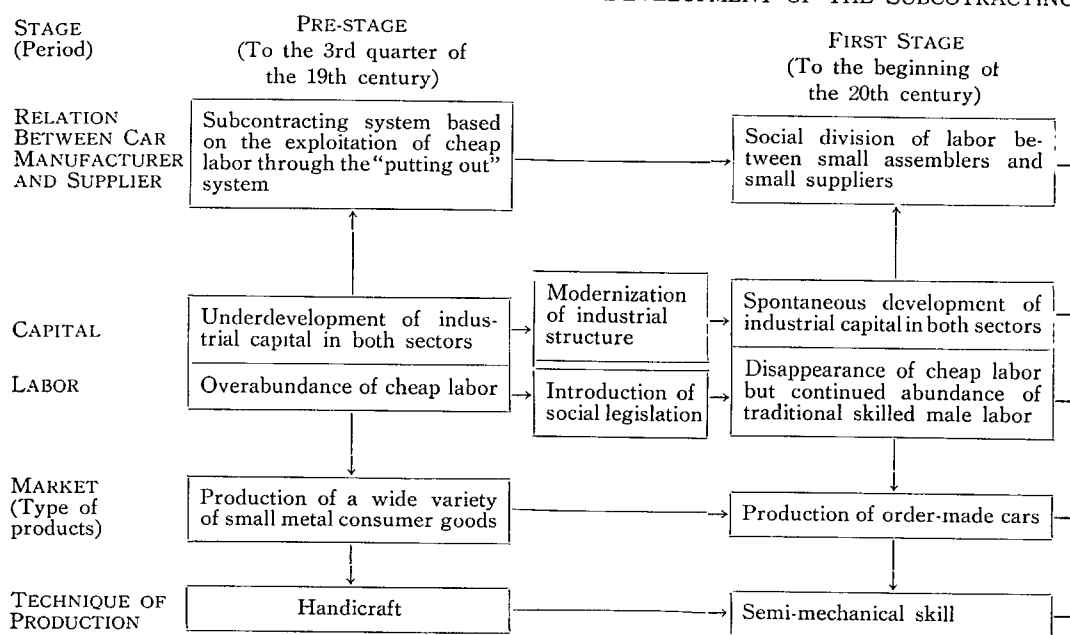
⁹ A. Silberston, *op. cit.*, p. 31.

II

The British motor industry, in contrast to its Japanese counterpart, has experienced a natural period of sustained growth.¹⁰ The first notable geographic concentration of the industry is found at the end of the 19th century in the West Midlands. This area was particularly suitable because of its diversified industrial nature. The small metal trades industry, which had previously been confined to handicrafts, began to adopt mechanical methods of production and to transform their products from consumer to producer goods.¹¹ At the same time social legislation doomed the area's chief economic advantage in the small metal trades industry: the systematic exploitation of a great pool of cheap, unskilled labour.¹²

A background of similar technical, industrial and social factors were present at the inception of the motor industry in Great Britain which provided a basis for the social division of labor between the automobile manufacturer and his suppliers. The manufacturer came from a wide variety of origins; numbering amongst them electrical engineering, cycle manufacturing and repairing, tinplate-wear production and the manufacture of sheep shearing machinery. The

TABLE
DEVELOPMENT OF THE SUBCONTRACTING



¹⁰ G. C. Allen, *The Structure of Industry in Britain* (London: Longmans, 1961) p. 34.

¹¹ G. C. Allen, *The Industrial Development of Birmingham and the Black Country* (London: Longmans, 1929) pp. 439-440.

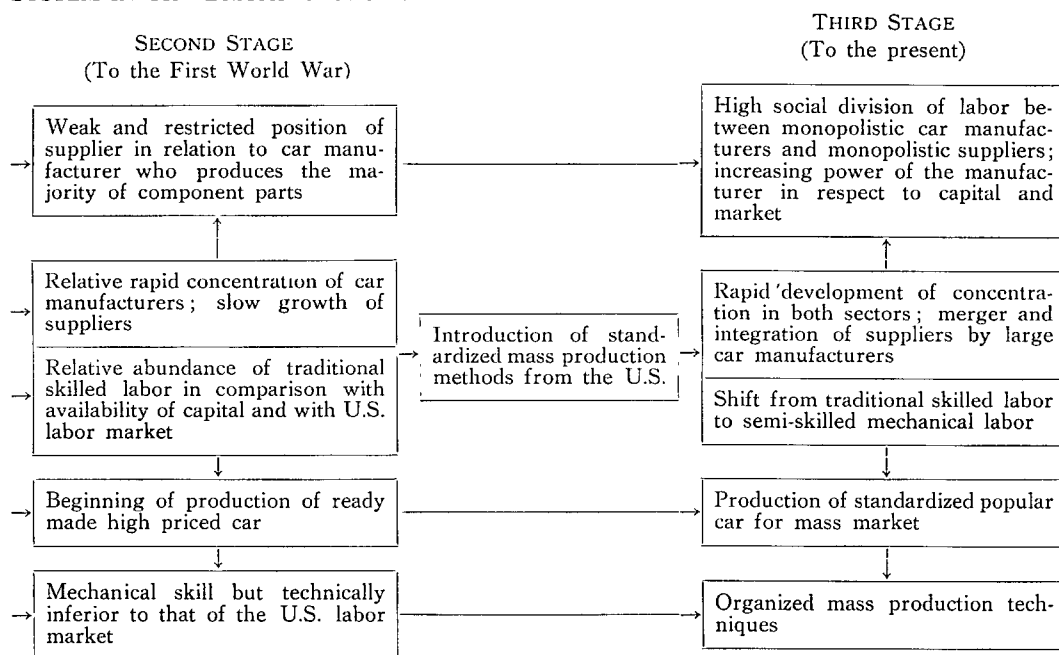
¹² *Ibid.*, pp. 176-178.

B. L. Hutchins and A. Harrison, *A History of Factory Legislation* (Westminster: P. S. King & Son, 1911) 2nd ed., pp. 158-160.

suppliers also emerged from a wide variety of trades: lighting; brass foundry; mirror manufacturing; iron mongery; oil-lamp manufacturing; coach-building and forging.¹³ Manufacturers came from essentially middle class families without established business background of any importance.¹⁴ Entry into the industry was relatively easy and only a modest amount of capital was required.¹⁵ From this early period it was necessary for the car manufacturer to depend on outside suppliers for the production of a large number of the diverse component parts. Many car manufacturers began as simple assemblers and the majority never progressed beyond that stage.¹⁶ The small independent metal producer of the West Midlands readily adapted his production to the manufacture of motor parts and consequently became a continued source of components for the automobile manufacturers. In the initial stages of the motor industry, then, both manufacturer and supplier began as small firms in a similar economic and social setting without noticeable capital differential or difference in market conditions: a relatively pure form of social division of labor characterized by the equal economic bargaining position of both parties.

The period from the beginning of the 20th Century to the inception of the First World War may be roughly classified as the second stage in the development between manufacturer

3. SYSTEM IN THE BRITISH MOTOR INDUSTRY



¹³ G. C. Allen, *The Structure of Industry in Britain*, *op. cit.*, pp. 33-34.

¹⁴ S. B. Saul, "The Motor Industry in Britain to 1914," *Business History* (Liverpool: University Press, 1962) Vol. V, No. 1, p. 27.

¹⁵ G. Maxcy and A. Silberston, *op. cit.*, p. 11.

¹⁶ S. B. Saul, *op. cit.*, p. 34.

and supplier in the British motor industry. This was a period of gradual expansion in production and manufacturers experienced a greater degree of concentration than suppliers. Entrance into the industry, however, continued to be relatively simple although the failure to keep abreast of technical advancements made during this period spelled disaster for many. By 1913, over half of the 200 firms in the manufacture of automobiles had succumbed to this fate.¹⁷ Because of the technological gap between those successful manufacturers who incorporated improvements and the component sector, the large manufacturer was often forced to produce almost the entire vehicle and many manufacturers prided themselves on this.¹⁸ The situation changed, however, as sectors of the component industry began to introduce technical innovations. Although producing partially for the small firm, component parts were supplied to the large firms in greater quantity than the latter were often willing to admit.¹⁹ At the end of this period some of the larger car manufacturers abandoned the production of order-made vehicles and adopted a planned production schedule which incorporated a systematic ordering of material, inventory, control of output, etc.²⁰ The latter necessitated a greater capital investment by the manufacturer and it was at this time that the relative capital superiority of the manufacturer became evident.

The period spanning the First World War to the present may be considered as the third stage of development. After 1919, there was a significant development in the component industry and although, like the manufacturers themselves, they were not yet equipped for mass production they did come to constitute an essential part of the motor industry.²¹ With the growth during the 1920's of specialist concerns, such as Joseph Lucas, Ltd., the component industry began to take on its modern shape. The need for a viable component sector was necessitated by the larger manufacturers introduction of mass production techniques, such as the American flow-production methods.²² The adoption of these processes, favoring a concentration of production, could effectively be incorporated by only a select number of large firms and, consequently, brought about a quantitative reduction in the industry as a whole. By 1939, there were only 33 remaining automobile manufacturers. 6 accounted for 90% of the total production of cars and 80% of commercial vehicles.²³ A notable feature of the industry since World War II has been the number of mergers both of a vertical and horizontal form.

III

In Japan, the problem of small and middle-size firms is viewed as one more or less inherent in all modern capitalistic systems. The subcontracting system, however, has been emphasized as a problem peculiar to the Japanese economy and the system as it exists in the capitalist nations of the West has been regarded as an ideal model. In studies on the motor industry, as well as other areas, there is little cognizance of the historical development of the subcontracting system in the West.

¹⁷ G. Maxcy and A. Silberston, *op. cit.*, p. 21.

¹⁸ G. Maxcy, *op. cit.*, p. 361.

¹⁹ S. B. Saul, *op. cit.*, p. 35.

²⁰ *Ibid.*, pp. 39-40.

²¹ G. Maxcy, *op. cit.*, p. 360.

²² G. Maxcy and A. Silberston, *op. cit.*, p. 14

²³ A. Silberston, *op. cit.*, p. 3.

There is, therefore, a tendency to emphasize not the dynamic quality but the permanent fixed subordinate position of the small and medium-size subcontractor in the Japanese motor industry. This subordinate position is characterized in part by extended deferred payment to supplier and forced cost reduction of component ordered by the parent firm. In many cases the small supplier has no opportunity to receive technical and financial assistance other than by complete dependence on the parent firm. The benefits of this relationship to the large manufacturer lie, not only in the achievement of economies of scale and use of specialized knowledge of the supplier, but also in the distinct advantage of low cost production through cheap labor and capital saving and as an economic cushion in periods of business fluctuations.

There have, however, been a number of suppliers who have established their own specialized techniques and, consequently, strengthened their bargaining position in respect to the large manufacturer. To some observers this recent growth of independent capital from within the field of small and middle-size firms has negated to a degree the traditional interpretation of permanent subordination of the supplier and has given rise to the new concept of "chūken kigyō."**

As I mentioned previously, the utilization of component suppliers as a mitigation of the effect of business fluctuations, may be evidenced even in Great Britain where the component manufacturers are comparatively highly developed. This advantage of the large firm is made possible by its capital superiority and relative monopolistic position as a purchaser. The strength of the manufacturer in relation to his supplier is therefore a direct result of the fundamental character of the industry itself.

In Japan, the reason for the great capital differential between manufacturer and supplier may be found in the peculiar feature of the motor industry. Unlike its British counterpart, which developed spontaneously over a long period, the Japanese motor industry was artificially created through Government initiative. With a weak base of engineering industries the automobile manufacturer was developed by a wholesale "transplantation" of foreign techniques financed largely by Government assistance.

Initially, Japanese car manufacturers made the majority of the component parts themselves. However, in an economy with a comparatively educated, cheap and abundant labor force and a scarcity of capital it was natural for the manufacturer to come to utilize subcontractors in order to economize costs and fixed capital outlay. From an early period then the manufacturer in the motor as well as other industries fostered the development of small suppliers under his control. In such a background dualism in the structure of the economy was almost inevitable. There appeared at the one extreme a highly modernized industrial sector made up of relatively large firms, and at the other a technically backward segment composed of a vast number of small and medium-size producers. This phenomenon of "nijū kōzō" (dual structure) has historically been exceedingly pronounced in the motor industry. The constant introduction of necessary sophisticated and highly capital intensive methods of production on the part of the large manufacturer has substantially increased his capital superiority over the small and middle-size supplier and widened the technological gap between the two.

Those industries (such as cycle, sewing machine and radio) which have largely been spared

** Refers to those middle-size enterprises which during the recent period of high economic growth have attained both a leading position in their individual sectors and a status of independence in relation to Big Business.

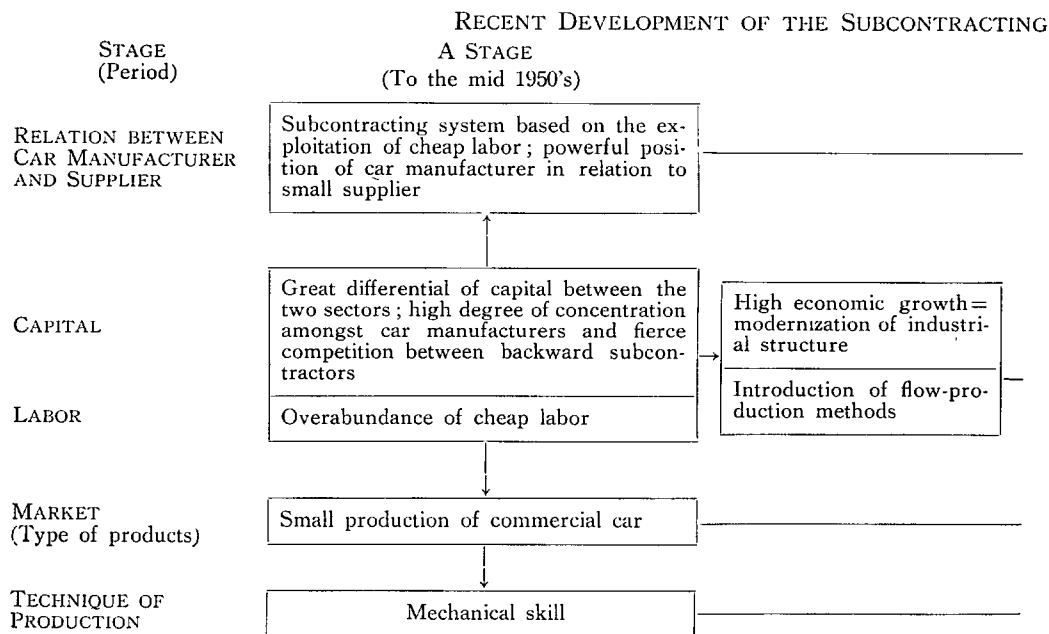
See: S. Nakamura, *Chūken Kigyō Ron* (Theory of Chūken Kigyō) (Tōkyō: Tōyō Keizai, 1964) pp. 86-97.

structural dualism and its resultant effect of subordination of the smaller firm etc., are those whose historical development was, on the whole, spontaneous and not artificially stimulated.

IV

In comparing the recent changes in the subcontracting system of the Japanese motor industry with the British model, it is necessary to be constantly aware of the difference in the historical development of the respective economies. Until the recent period of high economic growth the relation between car manufacturer and supplier in Japan, in respect to capital differential, was essentially similar to that of the British industry in its second stage of development (ca. 1900-1914). In Japan's case, however, the peculiar development of the industry brought about a greater advantage in capital superiority for the Japanese manufacturer in comparison to his British counterpart. The exploitation of cheap labor, which began to disappear in the 3rd quarter of the 19th century in Great Britain, continued to be an outstanding feature of the post-war subcontracting system in Japan. Following the Korean War, however, the Japanese motor industry was faced with a problem which has continued to effect the entire economy: a growing shortage of young labor. This, coupled with a realization of the inevitability of the liberalization of foreign imports, gave impetus to a high rate of modern equipment investment and an awakening on the part of the car manufacturer to the fact that in the face of imminent foreign competition he could no longer depend solely on the labor intensive products of his suppliers. Mass production methods were therefore instituted which required fundamental changes in the production system of the component suppliers and in their relationship to the manufacturer.

TABLE



The result was a change in the subcontracting system through a great intensification of the vertical inter-firm hierarchical ("Keiretsu") relation between manufacturer and supplier. While denying them the opportunity to sell competitors, the manufacturer made available substantial amounts of financial, technical and managerial assistance to certain select subcontractors.

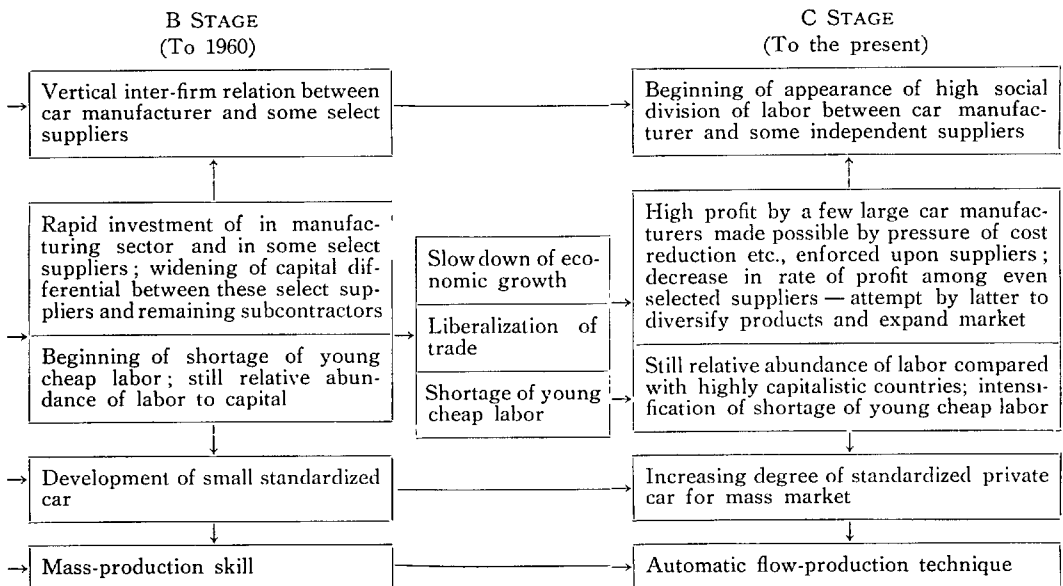
Through the incorporation of systematic production processes, the manufacturer was forced to utilize his subcontractors for the exigencies of relatively long range production plans, rather than from a short range view of maximum benefit to himself. Thus, production of many suppliers increased both quantitatively and qualitatively, and the basic conditions for evolution into independent specialists have been established. Because of the concentration among the manufacturers through the introduction of mass production methods, and the resultant growth of suppliers, this period is similar to the beginning of the transition period which culminated in the present stage of development of the British motor industry.

The peculiar character of the subcontracting system, however, has unfortunately not fundamentally changed. Each car manufacturer has exacted obedience from his own suppliers and has generally continued to restrict their sale of products to competitors. Moreover, under the pressure of liberalization of trade, the suppliers have been forced by the manufacturer to reduce costs. The supplier then attempts to shift this economic burden onto his subcontractors and this shift continues downward through the pyramidal structure. The continued pressure of cost reduction has been intensified since the 1960's because of increased capital investment by the manufacturer. This, coupled with increased capital outlay by the supplier himself and rising labor costs caused by the shortage of young labor, has resulted in a substantial drop in profits of even those selected subcontractors.

This is not to deny, however, that there have not been some rational movements within

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the industry to overcome these structural deficiencies. Some of the automobile manufacturers have begun to recognize the limitations and contradictions inherent in a continuation of the present vertical inter-firm hierarchy and have encouraged their subcontractors to expand their market. Consequently, some of the suppliers, through a greater efficiency in production brought about largely by technical and financial assistance from the large firm, have been able to enlarge both their range of products and market beyond the confines of the subcontracting system. These cases of emergence of independent specialists in the motor industry, however, are exceptions. Even in those component sectors which evidence a high degree of concentration and large-scale production methods there are few suppliers who sell to both of the giant automobile manufacturers: Toyota and Nissan.

The relationship between manufacturer and suppliers in the Japanese motor industry will eventually develop to a level comparable to that of the present stage of development in the motor industry of Great Britain. Its growth, however, will be impeded by the historically backward nature of the industry and also by the general economic condition of a relative abundance of labor and a relative shortage of capital. This necessitates a continued dependence on the large firm by the supplier and perpetuates the capital differential and inequality of bargaining position between the manufacturer and his subcontractors in a greater degree than in the British motor industry.